Testimony of Mr. Ken Baker
Principal Assistant Deputy Administrator
for Defense Nuclear Nonproliferation
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Introduction

Mr. Chairman, members of the Subcommittee, I thank you for having me here today. This hearing is an important opportunity to describe a number of key nonproliferation programs that are administered by the National Nuclear Security Administration, or NNSA.

This is a timely hearing. More than any time in the past, much greater attention is now paid to the "proliferation threat." It could almost be said that since the Cold War, we've traded one form of threat for another - and today's threat is much less predictable and more difficult to plan against. So I'd like to talk about what the threat is; how the National Nuclear Security Administration is responding to it; and some programs that I know are of interest to this committee. I will also discuss how NNSA is accelerating some of its efforts, in the aftermath of the September 11 attacks.

The Proliferation Threat

There are now any number of actors – so called "rogue" states as well as terrorist organizations – seeking to procure weapons of mass destruction capabilities. The international community sees a crisis in the fact that intensified and accelerated measures are needed by all states to improve the physical protection of nuclear materials worldwide, to improve control and accounting over this material, and to prevent illegal trafficking and handling of nuclear and radioactive materials. But these rogue actors view this crisis as an opportunity. A recent report from the International Atomic Energy Agency (IAEA) estimates that in recent years, there have been some 175 cases of possible nuclear trafficking in sensitive nuclear materials.

Enormous strides in securing this material have been made in Russia and elsewhere. But the fact remains that the theft of only a few kilograms of High-Enriched Uranium (HEU) or Plutonium (Pu), the deadly ingredients needed to fashion a nuclear device, would be enough for a weapon. The threat that weapon-usable material could be stolen or sold to terrorists or hostile nation states and used against American citizens is a clear and real threat that cannot be underestimated. Only a few kilograms of High-Enriched Uranium (HEU) or Plutonium (Pu), the deadly ingredients needed to fashion a nuclear device, would be enough to serve as a basis for a weapon.

Almost a year ago, in its January, 2001 report, the bipartisan Baker-Cutler task force warned that "weapons of mass destruction or weapons-usable material in Russia

could be stolen and sold to terrorists or hostile nation states, and used against American citizens at home. This threat is a clear and present danger to the international community as well as to American lives and liberty."

The events of September 11 have brought home the magnitude of the proliferation threat, and have led me to conclude that the threat has become a little more clear, a little more present, and very much more dangerous and real.

The NNSA Response

The Department of Energy's National Nuclear Security Administration (NNSA) is a key element in the U.S. response to today's threats. Within the United States Government, only the NNSA has the overwhelming corporate expertise in working with and understanding nuclear weapons and nuclear power; and only the NNSA is situated fully to exploit the world-class expertise of the U.S. national laboratories - a key asset in our arsenal.

Within NNSA, the Office of Defense Nuclear Nonproliferation (DNN) is directly responsible for the nuclear nonproliferation mission. Through DNN, NNSA supports U.S. efforts to help the United States to *detect* the proliferation of weapons of mass destruction worldwide; *prevent* the spread of WMD material, technology, and expertise; and *reverse* the proliferation of nuclear weapons capabilities.

Technology Research and Development

At the heart of our efforts to detect weapons of mass destruction proliferation are NNSA research and development programs. Harnessing the technical excellence of the National Laboratories, NNSA develops innovative solutions to detect and deter nuclear proliferation, smuggling, and terrorism worldwide, and to detect and respond to chemical and biological attacks in the United States.

The R&D program responds to the needs of the nonproliferation community, in advance of specific formal requirements. The program pushes the state-of-the-art in technology to detect and analyze proliferation activities. End-users rely on us to conduct the long-term R&D to provide innovative solutions for future systems to address their missions, while their resources focus on short-term requirements.

Our Chemical and Biological National Security R&D will lead to major improvements in how the U.S. prepares for and responds to chemical and biological attacks against civilian populations. Key elements of the cutting-edge technology being brought to bear against the bio-terrorism threat is the product of NNSA's Nonproliferation and Verification R&D Program:

- NNSA's prototype Biological Aerosol Sentry and Information System (BASIS) will be deployed to demonstrate biological detection capability at the Salt Lake City Olympics.

- Many techniques that NNSA has helped to fund and develop are currently being applied in anthrax strain analysis.

- Decontamination foam developed by the R&D program at Sandia National Laboratories has been transitioned to commercial vendors.

- A chemical detection system developed by the Sandia and Argonne National Laboratories was part of a recent Washington Metro emergency response exercise.

NNSA is clearly well poised to continue to make significant contributions to our national efforts to address today's -- and tomorrow's -- threats.

Non-proliferation programs in the former Soviet Union

The Material Protection, Control, and Accounting (MPC&A) program is our primary vehicle for addressing threats to United States national security posed by the possible diversion of undersecured Russian weapons and materials. In consolidating, securing, and reducing stocks of weapons-grade fissile material, MPC&A is a critical element in this nation's "first line of defense" against nuclear smuggling and terrorism.

In a moment I'll discuss steps we're taking to accelerate MPC&A programs. But I'd first like to note that this program continues to enjoy notable success:

Since 1993, the U.S. has helped Russia to improve security at 95 nuclear sites.

NNSA has completed rapid security upgrades for thousands of Russian Navy warheads and improved the security for 220 metric tons (MT) of Highly Enriched Uranium (HEU) and plutonium in Russia and other newly independent states -- enough material for roughly 20,000 nuclear devices.

NNSA is training Russian experts to take responsibility for long-term security at sensitive sites, consolidating Russian materials into fewer buildings at fewer sites, and converting tons of materials to forms less attractive to terrorists. We're also finding ways to work with Russia to help it dispose of its own surplus materials.

MPC&A programs are but one element of our response. The United States is also working with Russia to improve its export control system, from the enforcement level with Customs, to the industry level with internal compliance training, and at the regulatory and legal level of the ministries involved.

The United States seeks not only to secure, but to *reduce* the stockpiles of dangerous materials throughout Russia. Last year, Russia and the United States agreed to

dispose of 68 MT of surplus weapon-grade plutonium - 34 MT in each country. The Administration is currently examining alternatives to reduce the cost of this program and make it more sustainable. A final decision is expected within two months. And under the HEU purchase agreement, the United States has removed more than 141 metric tons of HEU from Russia's military programs – enough material for more than 5500 nuclear devices. Under this program, 500 MT will eventually be downblended and used for civilian reactors in the United States.

The United States is also working with Russia to improve its national capabilities to implement and enforce export controls, as well as its ability to detect and interdict nuclear materials at border checkpoints and borders. Some borders are thousands of miles long and present difficult challenges. Efforts in both areas need to be shored up as quickly as possible.

Enhancing Irreversibility of Nuclear Downsizing

The United States is working with Russia to ensure the irreversibility of steps taken to downsize Russia's nuclear weapons complex. We are helping Russia transform its closed nuclear cities by developing civilian employment opportunities for displaced workers. These objectives are pursued principally through our Russian Transition Assistance efforts, which encompass the Initiatives for Proliferation Prevention (IPP) program and the Nuclear Cities Initiative (NCI).

IPP helps to commercialize technology for the benefit of U.S. industry and simultaneously provides gainful employment for former Russian weapons scientists and technicians at more than one hundred and sixty institutes in the Former Soviet Union.

While IPP had only $24.5 million in U.S. dollars to invest in projects during the past fiscal year, it required its commercial partners at least to match its investment in each project. This helped IPP and its Russian partners to identify technologies offering the greatest commercial promise by requiring U.S. industry to commit to the project's technological development from the outset. This year, equity sources have already stepped forward to commit more than $50 million for the successful commercialization of five projects for the next fiscal year. Twenty other IPP projects are on the verge of commercialization for mid/late 2002.

Through IPP, we've successfully commercialized several energy related technologies, including a radar intended to enhance coal and oil recovery. This could result in revenues exceeding $2 billion during the next ten years.

A wheelchair seat cushion that can prevent pressure ulcers responsible for causing tens of thousands of deaths in the U.S. every year has just received FDA approval. When commercialized, this project could save Medicare more than $3 billion in annual treatment costs for pressure ulcers.

IPP is developing a robotic system to support humanitarian demining operations; an advanced prosthetic device that will significantly improve the quality of life for land mine survivors and other new amputees; and in conjunction with a major Russian software development company, will help redirect up to 500 Russian scientists and engineers toward commercial opportunities in the information technology sector.

These are but a few examples; there are many others. We're proud of IPP's success, and we look forward to future commercialization of its myriad ongoing projects.

I also want to touch on the Nuclear Cities Initiative (NCI). NCI's mission is to reduce the physical footprint of Russia's nuclear weapons complex, in part through the creation of sustainable, alternative non-weapons work that will help to achieve that objective and emphasize commercialization.

NCI's first major commercial effort facilitates the production of kidney dialysis equipment by a joint venture established between Fresenius Medical Care of Lexington, Massachusetts, and the Avangard nuclear weapons assembly plant, located in the closed city of Sarov, Russia. At Avangard, six buildings have been converted to form an open industrial park. Last year, the fence at Avangard was moved to carve out this commercial floor space, and thereby reduce the weapons portion of the complex. A number of other commercial projects are in process to make use of this industrial park, which is expected to expand to include even more production space in 2002.

A little over a year ago, virtually no Westerners had ever been allowed to set foot in Avangard. Now they are part of a joint venture that will use resources, buildings and personnel that previously produced nuclear weapons to manufacture life-saving medical devices. This is truly beating swords into plowshares - almost in a literal sense. We hope to carry out a similar effort at an excess Russian nuclear weapons production facility in Zarechnyy, formerly known as Penza-19.

Multilateral Approaches

Complementing our bilateral cooperation with Russia and other former Soviet states is NNSA's support of the International Atomic Energy Agency. Speaking to the IAEA's Board of Governors last week, Secretary Abraham observed that, "The work the Agency does to deny nuclear material and radioactive sources to terrorists and state sponsors of terrorism is an integral part of our effort to stem the proliferation of weapons of mass destruction." NNSA is working with other U.S. agencies to increase our support of the IAEA's programs in physical protection, illicit trafficking, and radiation source management. NNSA expertise and technology helps the IAEA strengthen its safeguards system, giving the Agency an enhanced capability not only to detect the diversion of nuclear material from declared programs, but also to detect clandestine, undeclared nuclear programs.

Last week Secretary Abraham pledged $1.2 million to match a contribution from the Nuclear Threat Initiative, with the aim of enhancing the IAEA's role in the fight against nuclear terrorism.

Looking Ahead

While NNSA considers new avenues, it is also accelerating ongoing efforts.

Taking advantage of a recently signed Access Memorandum, MPC&A is working with Russian officials to identify and make more secure additional locations in Russia where nuclear materials are located. New contracts are being signed for security upgrades at Tomsk and Mayak, two critical Russian sites. We are accelerating our cooperation with MinAtom on Protective Force training and equipment for these and other sensitive facilities, and working with the Russian Navy to complete security upgrades for approximately 4,000 nuclear weapons. An NNSA team has purchased over 700 sets of winter protective gear, so that the guards will be able to continue their duties during the winter.

The United States and Russia are beginning negotiations on a Material Consolidation and Conversion agreement that would consolidate sites where weapons-grade material is located. NNSA is also expanding its Second Line of Defense program to increase by the end of this fiscal year the number of such sites operating on the Russian border from four to at least twelve.

NNSA is committed to improving safety at Russian reactors that now operate at levels below minimum acceptable international standards for reactor safety. And it is vital to improve the physical security of nuclear power plants throughout the former Soviet Union. NNSA is also looking to speed up the pace of a program that would "take back" spent fuel from Russian-supplied research reactors in approximately 16 countries, many of which are located in sensitive regions. NNSA officials recently met with their Russian counterparts to discuss implementing this program.

Conclusion

Mr. Chairman, thank you for the opportunity to appear today. I look forward to taking any questions you may have.